

operational parameter of at least a first load that consumes electrical power and that is electrically connected with the local electrical network.

[0013] Another aspect of the disclosed and claimed concept is to provide such an improved controller and method that adjust the operational parameters of one or more electrical loads that are in the nature of electrical appliances and the like that are already used in the household for household chores and other operations, whereby the cost to implement the advantageous improved controller and method is incurred almost exclusively in the cost of the controller and its connection with the local electrical network.

[0014] Another aspect of the disclosed and claimed concept is to provide an improved method of controlling the provision of electrical power from a local electrical network to a power grid, the local electrical network including a power source that generates power and a number of electrically connected loads that consume power. The method can be generally stated as including determining that the power that is generated by the power source and that is unused by the number of loads is of an amount whose rate of change exceeds a predetermined rate and, responsive to the determining, adjusting an operational parameter of at least a first load of the number of loads from a first state to a second state to alter the rate of change in the amount.

[0015] Another aspect of the disclosed and claimed concept is to provide an improved controller that is structured to be electrically connected with a local electrical network, the local electrical network including a power source that generates power and a number of electrically connected loads that consume power, the controller being further structured to control the provision of electrical power from the local electrical network to a power grid. The controller can be generally stated as including a processor apparatus that can be generally stated as including a processor and a memory, an input apparatus that is structured to provide input signals to the processor apparatus, and an output apparatus that is structured to receive output signals from the processor apparatus, with the memory having stored therein a number of routines which, when executed on the processor, cause the controller to perform operations that can be generally stated as including determining that the power that is generated by the power source and that is unused by the number of loads is of an amount whose rate of change exceeds a predetermined rate and, responsive to the determining, adjusting an operational parameter of at least a first load of the number of loads from a first state to a second state to alter the rate of change in the amount.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] A further understanding of the disclosed and claimed concept can be gained from the following Description when read in conjunction with the accompanying drawings in which:

[0017] FIG. 1 is a schematic depiction of a local electrical network that is electrically connected with a power grid and that is controlled by an improved controller in accordance with the disclosed and claimed concept;

[0018] FIG. 2 is a schematic depiction of the controller of FIG. 1;

[0019] FIG. 3 is an exemplary time chart depicting the voltage of a power grid and the power provided to the power grid from a local electrical network which together indicate a need for the controller of FIG. 1 to control the rate of

change of the power that is supplied to the power grid from the local electrical network; and

[0020] FIG. 4 is a flowchart that depicts certain exemplary aspects of an improved method in accordance with the disclosed and claimed concept.

[0021] Similar numerals refer to similar parts throughout the specification.

DESCRIPTION

[0022] An improved controller 4 in accordance with the disclosed and claimed concept is depicted in FIGS. 1 and 2. The controller 4 is depicted in FIG. 1 in an implementation wherein a local electrical network 8 is electrically connected with a power grid 12. The controller 4 is schematically depicted in FIG. 2.

[0023] Further regarding FIG. 1, the exemplary local electrical network 8 includes a load center 16, a power source 20, and a load apparatus 24 that are electrically connected together. In the depicted exemplary embodiment, the power source 20 is a photovoltaic array. As will be set forth in greater detail below, the load apparatus 24 includes a number of electrical loads that are operable from electrical power, meaning that they consume electrical power and correspondingly perform some type of operation or work as a result of the consumption of the electrical power. As employed herein, the expression “a number of” and variations thereof shall refer broadly to any non-zero quantity, including a quantity of one. The electrical loads are, as a general matter, electrical loads that exist to perform useful work in and about the household that contains the local electrical network 8 and thus are expressly not in the nature of electrical storage batteries that are intended to store electrical power for a period of time for the purpose of eventually returning the stored electrical power to the local electrical network 8 or to the power grid 12. While it is noted that some of the electrical loads of the load apparatus 24 can include rechargeable batteries that perform useful work with the stored electrical charge, such as battery-powered hedge trimmers, electric vehicles, and the like, it is further noted that such electrical loads store electrical power for the purpose of later consuming while performing useful work and not for the purpose of later returning the stored electrical power to the local electrical network 8 or to the power grid 12.

[0024] As will be set forth in greater detail below, the local electrical network 8 includes a connection apparatus 26 that is installed between the controller 4 and the load apparatus 24 and that is usable to enable the controller 4 to control aspects of the various loads of the local electrical network 8 in a fashion that will be set forth in greater detail below. The connection apparatus 26 is depicted herein as being a series of electrical wires that are represented in FIG. 1 with dashed lines, but it is understood that in other embodiments the connections could instead be made via a wireless communications or potentially could be communicated over the electrical wires themselves that extend from the load center 16 and that are used to provide electrical power to the various loads of the load apparatus 24. Other variations will be apparent.

[0025] As can be seen in FIG. 1, the load apparatus 24 includes a first load 28 (indicated in FIG. 1 as “LOAD 1”), a second load 32 (indicated in FIG. 1 as “LOAD 2”), a third load 40 (indicated in FIG. 1 as “LOAD 3”), a fourth load 44 (indicated in FIG. 1 as “LOAD 4”), a fifth load 48 (indicated